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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/842,201      | 04/24/2001  | Cheung Auyeung       | VWE-001-1           | 5410             |

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| EXAMINER |
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BUGG, GEORGE A

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2613

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DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/842,201

Applicant(s)

AUYEUNG ET AL.

Examiner

George A Bugg

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s)        is/are withdrawn from consideration.
- 5) ☐ Claim(s)        is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s)        is/are objected to.
- 8) ☐ Claim(s)        are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on        is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on        is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No.       .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s)       .
- 4) ☐ Interview Summary (PTO-413) Paper No(s).       .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:       .

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed 8/15/03 have been fully considered but they are not persuasive. It is the position of the Examiner that the claimed limitations are in fact met by the cited references and passages, and an explanation of such follows.

2. With regard to Applicant's arguments, pertaining to claim 1, Section 124 states that difference values are obtained between pixels of a reference block and a current block. The fact that differencing is done on a pixel-by-pixel basis teaches a plurality of difference measures. Furthermore, as previously stated, the reference block is equivalent to selecting a predetermined pattern of pixels in the previous image, both because a reference frame does come before a current frame, and because establishing the search of area of the reference block is in fact selecting a unique, pixel pattern. In addition, the checker wise thinning of Ando, does create a sub pattern of pixels, which in turn is differenced with a current frame. Again pixel by pixel differencing is equivalent to a plurality of difference measures.

DETAILED ACTION

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5, 7, 8, and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 973 336 A2 to Ando et al.

3. As for claims 1, 5, 7, and 11-14, columns 23-24, sections 120-125, as well as Figure 15, discloses an algorithm for calculating a motion vector. In section 120 Ando states that the search area of a block of a reference, or previous image, is set. Establishing the search area of the reference block is equivalent to **selecting a predetermined pattern of pixels in the previous image**, as claimed, because the search area will have a unique pixel pattern based on the size of the area of the reference block. Moreover, the reference block is compared to a current image, for the purpose of obtaining differences between pixels, to compute a motion vector, as is the case in most motion vector calculating schemes. As is stated in section 122, the smallest difference between the current frame and the reference frame, is represented as ADmin, which is the minimum absolute difference between a pixel of the current frame and a previous frame, at the origin. As is shown in step 28, of Figure 15, ADmin,

which is the absolute difference of the origin block, and AD, which is the absolute difference of the current block, are used to calculate a motion vector, as shown in step 29 of Figure 15. Additionally, the sub pattern of pixels, as claimed in claim 7, is taught by Ando, whereby current frames are thinned. See column 25, section 133.

4. With regard to claims 2, 3, 8, and 10, Figure 17 of Ando, shows half of the pixels of the previous image. Furthermore, Ando states in column 25, section 133 that checker wise thinning is utilized. Inherently, thinning could be used to produce any number of desired pixel patterns.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4, 6, 9, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 973 336 A2 to Ando et al.

7. As for claims 4, 6, and 9 the manipulation of y-coordinate data, as well as squaring, and summing the squares, of the difference data, is well within the limits of what is known in the art of computing motion vectors. (Official Notice)

8. The processors, comparator, buffer, and cache, as claimed in claims 15-19, for the purpose of performing differencing, storing, and comparison, of pixel data, are well

known functions, and components of motion vector calculation schemes and apparatuses. (Official Notice)

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George A Bugg whose telephone number is (703) 305-2329. The examiner can normally be reached on Monday-Thursday 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher S Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-5359.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

George A Bugg  
Examiner  
Art Unit 2613

GAB

November 3, 2003

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CHRIS KELLEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600